

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An X-ray microscope apparatus comprising;
an X-ray ~~generator;~~generator including a laser and capable of generating X-
rays by irradiating a target with a laser beam;
a photocathode disposed on a path of X-rays generated by the X-ray generator,
the photocathode being configured to produce electrons when irradiated with X-rays
generated by the X-ray generator so that an electron image of a specimen held on the
photocathode is formed;
an electron image enlarging device configured to enlarge the electron image of
the specimen, the electron image enlarging device including an acceleration anode configured
to accelerate electrons produced by the photocathode and a magnetic lens configured to
enlarge and focus an electron beam of electrons emitted by the ~~photocathode;~~photocathode,
the magnetic lens including a first magnetic lens configured to act as an object lens and a
second magnetic lens configured to act as a projection lens;
an electron beam detecting device configured to detect an electron beam
focused thereon by the electron image enlarging device; and
an image processing device configured to process an electron image formed by
the electron beam detecting device so as to provide a visible image.
- 2-5. (Canceled).
6. (Currently Amended) The X-ray microscope apparatus according to ~~claim 5,~~
claim 1, wherein X-rays generated by the X-ray generator is applied directly to the
photocathode.

7. (Currently Amended) The X-ray microscope apparatus according to ~~claim 5~~, claim 1, wherein the X-ray generator is provided with an X-ray condensing device capable of condensing X-rays generated by the X-ray generator so that condensed X-rays are applied to the photocathode.

8. (Currently Amended) The X-ray microscope apparatus according to ~~claim 5~~, claim 1, wherein the target is covered with a protective target cover made of a thin film capable of transmitting X-rays.

9. (Original) The X-ray microscope apparatus according to claim 8, wherein the protective target cover is formed of a material that transmits X-rays of wavelengths in a range of 2.3 to 4.4 nm effectively.

10. (Currently Amended) The X-ray microscope apparatus according to ~~claim 5~~, claim 1, wherein the laser and the electron image enlarging device are disposed such that an axis of the laser beam emitted by the laser and an axis of the electron beam used by the electron image enlarging device are parallel.

11. (Original) The X-ray microscope apparatus according to claim 10, wherein the axis of the laser beam emitted by the laser and the axis of the electron beam used by the electron image enlarging device are included in a common horizontal plane.

12. (Original) The X-ray microscope apparatus according to claim 10, wherein the axis of the laser beam emitted by the laser and the axis of the electron beam used by the electron image enlarging device are included in a common vertical plane.

13. (Original) The X-ray microscope apparatus according to claim 12, wherein the laser is disposed below the electron image enlarging device, and a power supply unit for supplying power to the laser and an evacuating unit for evacuating the X-ray generator are disposed below the laser.

14. (Currently Amended) The X-ray microscope apparatus according to ~~claim 5,~~
claim 1, wherein the electron image enlarging device is set such that an axis of the electron
beam is vertical.

15. (Original) The X-ray microscope apparatus according to claim 14, wherein the
X-ray generator is disposed above the electron image enlarging device.

16. (Currently Amended) The X-ray microscope apparatus according to
claims 14, ~~wherein~~ wherein the X-ray generator is disposed below the electron image
enlarging device.